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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/848,831

05/19/2004

James F. Bredt

ZCO-100

4783

51414 7590 12/01/2006

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EXAMINER

AHMED, SHEEBA

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/848,831	<b>Applicant(s)</b> BREDT ET AL.	
	<b>Examiner</b> Sheeba Ahmed	<b>Art Unit</b> 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. No amendments have been made to the claims in the response filed on November 18, 2006. **Claims 1 - 25, 40, 60, 68, 76, 78, 80, 82, and 83 are now pending and under consideration.**

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-25, 40, 60, 76, 78, 80, 82, and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Cima et al. (US 5,387,380).

Cima et al. disclose the use of 3D printing techniques to manufacture prototype parts (Column 1, lines 14-16). A powdered material such as powdered ceramic, metal or plastic is deposited in sequential layers one on top of the other. After each layer is deposited, a binder material is provided on top to form the part in question (Column 3, lines 1-20). While the layers become hardened as each of the layers is laid down, the part may be heated or cured to further promote binding of the powdered particles (Column 4, lines 44-55). The powder may be deposited in dry or wet form (Column 5, lines 18-23). Particle sizes may range in the 5-20 micron size. Colloidal dispersion of particles can be obtained in a liquid vehicle using chemical dispersants (Column 8, lines

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66-68). The binder material may be such that the bonded particles have a high binding strength as each layer is deposited so that when all the layers have been bonded, the component formed thereby is ready for use without further processing (Column 9, lines 6-32). Organic binders can be used and examples include cellulosic binders and butyral resins (Column 10, lines 31-36). Binder particles entrained in liquid can be used (Column 11, lines 50-52). Many possible combination of powder and binder materials can be used. Examples include ceramic powders in either organic or inorganic binder and plastic powder with a solvent binder or a plastic binder such as a epoxy plastic material (Column 12, lines 11-21). Volatile liquids are advantageous in linking and strengthening a powder layer since they reduce the accumulation of liquid in each layer. For examples, methanol with a small amount of octanol distributed in a thin layer can be used. Other examples include salt dissolved in water (Column 13, lines 23-65). All limitations of claims 1-25, 40, 60, 76, 78, 80, 82, and 83 are disclosed in the above reference.

3. Claims 1 - 25, 40, 60, 68, 76, 78, 80, 82, and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Bredt et al. (US 5,902,441).

Bredt et al. disclose an article made up of layers if a mixture of particles of an adhesive and a filler, the adhesive can be activated by a fluid containing a solvent and other processing aids which modify the working properties of the fluid and adhesive or which enhance the mechanical properties of the finished articles. The adhesive is directly mixed in with the filler and the method includes applying a layer of the mixture

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onto a flat surface, applying that fluid that activates the adhesive causing the particles to come together in a solid layer. Successive layers are applied and repeated until the required number of portions have been formed (Column 3, lines 35-67). Processing aids include humectants, flow rate enhancers, and dyes. The particle material may include a plurality of particles having a mean diameter of about 10-300 microns (Column 5, lines 1-36). The adhesive provides high bonding strength and preferred adhesives include water soluble compounds such as sugars, carbohydrates, protein. Specific examples include the polymers listed in Column 8. The filler is selected so that it is sparingly soluble in the fluid and examples include starches such as maltodextrin (Column 8, lines 15-36). The fluid that activates the adhesive includes a solvent that may be aqueous or non aqueous and examples include water, methyl alcohol, ethyl alcohol, acetone and acetic acid (Column 9, lines 28-41). All limitations of claims 1 - 25, 40, 60, 68, 76, 78, 80, 82, and 83 are disclosed in the above reference.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 76, 78, 80, and 82 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-26 of U.S. Patent No. 5,902,441. Although the conflicting claims are not identical, they are not patentably distinct from each other.

The claims of U. S. Patent No. 5,902,441 recite a method of forming an articles by applying a first film of particles that carry an activatable adhesive and a fluid that activates the adhesive in an amount sufficient to activate so that the particles in the film adhere to form a solid article and wherein subsequent films of particles are formed one on top of each other and wherein at least a portion of the particles is sparingly soluble in the fluid. U. S. Patent No. 5,902,441 further claims that the prickles have a mean diameter of 10-300 microns.

Accordingly, the method of forming an article using 3D printing as recited in claims 76, 78, 80, and 82 of the instant invention is obvious.

### ***Response to Arguments***

5. Applicant's arguments filed on November 18, 2006 have been fully considered but they are not persuasive. Applicants traverse the rejection of caims 1-25, 40, 60, 76,

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78, 80, 82, and 83 under 35 U.S.C. 102(b) as being anticipated by Cima et al. (US 5,387,380), the rejection of claims 1 - 25, 40, 60, 68, 76, 78, 80, 82, and 83 under 35 U.S.C. 102(b) as being anticipated by Bredt et al. (US 5,902,441), and the rejection of claims 76, 78, 80, and 82 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 5,902,441 and submit that the above references do not teach a thermoplastic particulate material.

However, the Examiner would like to point out that Cima et al. (US 5,387,380) disclose the use of 3D printing techniques to manufacture prototype parts using a plastic powdered material. Furthermore, Bredt et al. disclose an article made up of layers if a mixture of particles of an adhesive and a filler, the adhesive can be activated by a fluid containing a solvent and other processing aids which modify the working properties of the fluid and adhesive or which enhance the mechanical properties of the finished articles wherein the adhesive provides high bonding strength and preferred adhesives include water soluble compounds such as sugars, carbohydrates, protein. Specific examples include the polymers listed in Column 8 and are identical to the ones claimed in the instant application.

Hence, the above rejections are maintained.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 6am to 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sheeba Ahmed  
Art Unit 1773  
November 19, 2006